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JANUARY
1946

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

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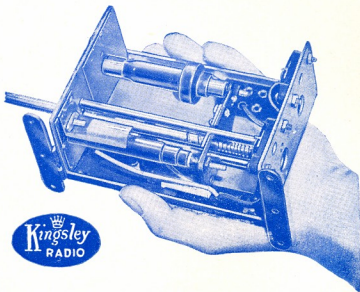
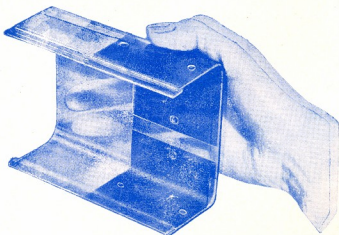
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Editorial

For some months we have been anticipating the re-issue of Experimental Licences.

That day has arrived, for by this time all Hams who completed their application for licence should have received advice that their licence will be issued on receipt of the required fee. In fact many licences have already been issued.

In this respect we wish to draw your attention to the Federal Secretary's comments in FHQ Notes in the October, 1945, issue . . . "The fellows who have 1939 rigs in going order, requiring only the insertion of tubes, coils, etc., may be for the most part O.K.; but imagine what is going to happen if a thousand or so hurriedly built transmitters are suddenly to open up? Remember, too, that such rigs would likely be feeding even worse contraptions in the way of skywires. Just consider for a moment the chirpy signals, overmodulated phone, off frequency operation, harmonics and BCL QRM likely to result. Whether you are a new Ham or an Old Timer, if you have to build a new rig to get on the air, for the love of Amateur Radio be sure of what you are doing. We will be starting off with a glorious war record; let us preserve its memory in good operating and gentlemanly conduct."

The days of hit or miss methods have gone—the introduction of precision measuring equipment and components—and at a reasonable price, too—gives the Ham no excuse for poor quality transmissions either on telegraphy or telephony.

Gone too are the days when one could act more or less as he wished—good conduct while on the air—and off it too—should be the aim of the Ham Fraternity.

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A 2½ METRE CONVERTER

By F. DICKSON, VK2AFB*

FOLLOWING upon the release of frequencies above 28 mC. for Amateur operation, this article should prove of timely interest to most Hams. When used in conjunction with a reasonably good superhet, a converter of this type offers a very satisfactory way out of the VHF reception problem. Some modification in coil design may be necessary, as since this article was written, information has come to hand which indicates that 112-116mC is no longer available for amateur use. In its stead, 166-170mC has been allotted. (Tech. Ed.)

For those who do not wish to build a separate superhet., but are not satisfied with the performance of super-regenerative receivers, a converter is the obvious thing to obtain V.H.F. reception.

The unit here described is for the 2½ metre band only, as the writer lost interest in 5 metres a year or two before the war, and the prospects for 1½ are still rather doubtful. There would, however, be no particular difficulty in soldering banana plug receptacles onto the condensers to take plug-in coils instead of soldering the coils to the condensers. The converter is very simple and gives excellent results when operated with a receiver which has good frequency stability around 21 mcs. This feature is worth emphasising: If the receiver suffers from frequency drift the results will be poor and frequent retuning necessary, no matter how good your converter may be. Very high gain is not needed in the receiver, a set with R.F. stage and normal valve line up would not be required to run with the gain control more than half maximum setting.

A number of experiments showed that at 116 mcs. pentode R.F. stages whether acorn, miniature or all glass were not worth the work and expense involved. Admittedly a small amplification is attained and some improvement in signal to noise ratio, but not enough to justify the R.F. stage.

In the mixer stage, a triode was chosen, though here again a pentode could be used with some small advantage. The triode has the merits of simplicity, economy and entirely adequate performance. Cathode injection as used in this converter is very easy to get going and is excellent as regards freedom from interlocking with the oscillator.

The oscillator needs little comment. It is a cold plate Hartley, in which one side of the condenser can be earthed. The voltage stabilising is well worth while.

The intermediate amplifier is an EF 50 (VR91 to many of us). This is an all glass (i.e. no bakelite base) pentode of very high slope and amplification. There are no difficulties in high gain I.F. stages with these valves, but a few tips may be handy. As in all single ended valves of high gain a shield should be placed across the socket to isolate anode and grid circuits and well bonded to chassis. As will be seen in the photo, all by-pass condensers are returned to a common point on the shield and the internal screen and suppressor grid connections are soldered directly to it.

Mica by-pass condensers should be used and preferably those with flat connections rather than wire pig-tails. Since the screen operates at 250 V. no screen dropper is needed.

A few points about construction are called for. The photograph shows the layout quite clearly. The coils, condensers and acorns are below the chassis to get everything compact with short connections. Obviously an above chassis arrangement would be nearly as good, but we originally intended to have an R.F. stage on top with the anode protruding through a hole in the mixer.

The coils are soldered direct to the condensers, which, together with the acorn sockets and 1" pillars are then

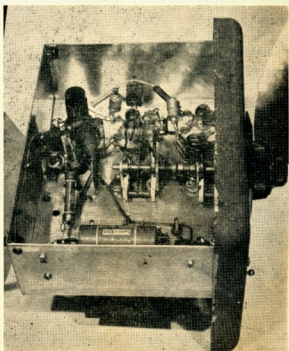
mounted. Cathode leads and earth returns for these components are made of copper strip for low impedance. The air trimmer tuning the mixer anode circuit is mounted at the acorn socket and its earth side goes to earth via a mica condenser under the socket. This is necessary to give a short return path for the V.H.F. components of anode current.

The first I.F. is made on polystyrene tubing and placed in the corner of the chassis. It does not require shielding. Its untuned grid winding is connected between EF 50 grid and the return point on the shield. The second I.F. is mounted in the shielding can above the chassis and has a low impedance secondary. It is important that all coils be rigidly mounted and connected.

The power supply and voltage regulator are perfectly straight forward and can be placed where convenient on the chassis or as a separate unit.

Having constructed the converter the next thing is to line it up. Mixer and I.F. valves should be in place, but the oscillator out. Couple the unit to the receiver tuned to 21 mcs. and connect a signal generator to the grid of the EF 50 and adjust the anode trimmer. Now transfer the generator to the mixer grid and tune up to anode

(Continued on page 4)



*Transmitting Department—Phillips Electronic Industries

HAMS HAD THE NEWS

By FI/Lt. W. M. MOORE, VK2HZ

This is the story of Hams and cranks in their endeavours to supply news to inmates of Japanese Prisoner of War Camps.

The writer's first contact with the Japanese was at Tasikmalaya Aerodrome in Central Java, where had assembled some 6000 Airforce personnel after the capitulation of Java. He had arrived with ZL2UP, and later met up with VE2JT and VE2CD, all Radar Officers.

We naturally wanted the news, but it was quite easy, as ZL2UP had arrived with an allwave portable. During the ensuing days we inspected the various pranged aircraft around the 'drome—most of them destroyed by the Dutch just before the fall. A considerable amount of the radio gear was intact, the souvenir instinct took over and with an eye on the future Ham activity some of the gear was purloined. These parts were to play a big part in the receiving of news in P.O.W. camps.

The writer fancied a pair of Kitty-Hawks superhets. as a memento, plus all available spares.

Some weeks later a search was threatened, and the hurried dropping of all excess gear into a nearby well saved the day. The search was only superficial, so it was decided to salvage some of the dumped metal valves. It looked like a diving competition until someone fished up an old permag speaker—the rest was easy—a length of wire, the magnet dropped into the well, a slight click up was brought a tube. The best haul was three. It was two of these salvaged tubes that we used practically the whole of the three and half years.

At the end of April, the writer was separated from the others, when Australian personnel were brought to Batavia and placed into a camp with the rest of the Australians and Americans. This was Cycle Camp, where a C.O. of an Australian Unit had a 1.5 volt super, installed; placed in a dummy shelf in a cupboard. The set supplied the news for some months until during a hurried covering up, the Colonel's batman extinguished the 1.5 volt valves. As no more 1.5 valves were available at this stage, a two tube regenerative receiver was constructed in an issue kidney-shaped dixie, which was filled with sugar in an emergency. This receiver was used for about six months, run from the superhet's batteries.

In September, a Kitty-Hawk receiver was brought from its hiding place in the roof. The front section cut off and a T.R.F. job constructed. 1.5 volt valves were used, these tubes were smuggled into the camp by lads working on outside working parties. One rather optimistic type arrived back with a 50 watt dangle hanging between his legs.

The T.R.F. job was located under the bed beneath the floor, where three removable tiles allowed easy access. The writer extinguished this set of 1.5 volt valves, and decided there and then that the filaments of these types were a little flimsy for hasty burials as required in P.O.W. camps. Metal tubes, 12 volt heaters were always used thereafter.

Cycle Camp was rather an ideal camp for constructing and operating sets. Most of the huts were divided into small cubicles, allowing plenty of warning for a quick disposal of gear. At this stage, October, 1942, there were three other sets operating in the camp of 3000, one by VK4JB, and two by Americans. During this month, 95% of the camp strength left for the ill-famed Thai-Burma railway, included amongst them was VK4JB. The question then was how to transport his gear.

The receiver was hurriedly built into a dummy water-bottle. Spares and batteries were fitted into meat and vegetable tins cut in half and re-soldered with a label

stuck over the offending join. The writer heard later from returning P.O.W. at Morait that the receiver operated successfully in Thailand.

The batteries used were standard torch cells in series, purchased ostensibly for emergency lights in the hospital.

The Japs at this stage were tightening up and it was apparent that future Jap policy would incorporate the switching of personnel at short notice from camp to camp. Gear now would have to be readily transportable and concealed well enough to pass a thorough search, both leaving the old and entering the new camp.

During the ensuing six months the writer was in three camps in the Batavia area, and the gear was carried in M. and V. tins. On returning to Cycle Camp, a small receiver was constructed and fitted into the bottom of an issue water bottle. The bottom of the bottle was removed and a dummy section soldered in about four inches from the top, leaving a compartment 4 inches x 5 inches x 2 inches for the receiver. The inquisitive eye sees four inches of water if the cork is pulled out.

At this stage batteries were running short and a midget power supply was constructed with hand wound transformer and choke. This was secreted in the base of another water bottle.

This set was operated till towards the end of 1944. It was removed from the bottles for operating and fitted under a bamboo bed with sliding top. Procedure was to erect mosquito net, unroll bed, slide panel and swelter while the B.B.C. came through.

At the beginning of 1944, the Nips conducted some very thorough searches, all personnel were removed from the camp area and the Nips counterpart of the Gestapo went to work. Fortunately no one was ever caught with the goods.

About this time, all metal water bottles were seized for the use of native troops, and that rather cramped future movements. It was finally overcome by the use of wooden shoes (clogs) as containers. These clogs were the universal footwear of natives and prisoners alike.

The camp variety were generally two inches thick and the outline shaped to the size of the foot. A canvas strap across the toes allow you to drag them along. The sole and heel sections were hollowed out to accommodate the radio components. In the soles were housed the receiver, condensers and rectifier, while in the heels the headphones and autotransformer. It was this receiver used by Messrs. Collins and Arnold, of Royal Corps of Signals, that received news of the final Jap surrender.

It was remarkable the way the news came through at every camp in which I was imprisoned. At least one set was in operation by the writer or another Ham or crank. Other methods of conveying sets from camp to camp were as follows. A common method was the distributing of the parts amongst a large number of people and they were secreted in tins of powder, sugar, socks, etc. The use of water bottles, food tins and clogs have been mentioned; but the classic is the effort of "Buck" WATB.

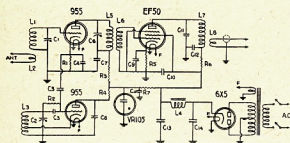
As a student at Annapolis Naval Academy he lost a leg while on duty about a minesweeper—yes, believe, "Buck" carried his set in his artificial leg. He was quite happy about it until the filament dropping resistor became a little too hot one day and burnt the leg. So a less inflammable hiding spot was found about the camp.

A.C. leads for receiver supplies were often a problem, but with the use of dummy shelves and bamboo tubes and pins stuck into V.I.R. cable, these difficulties were overcome. The antenna was no problem as mosquito net supporting wires were satisfactory, as a piece of 26 g.

(Continued on page 8)

A 2½ METRE CONVERTER

(Continued from page 2)



PARTS LIST.

- C1, C2—Hammarlund 3 pl midgets 1 stator plate removed. Ganged.
 C3—50uuf Philips Ceramic.
 C4—30uuf Philips Ceramic.
 C5, C6, C11—3-30 Philips Air Trimmer.
 C7, C8, C9, C10, C12—.002 uf mica Simplex.
 C13, C14—8uf 525V Ducon tubular.
 C15—.01 mica Simplex.
 R1, R2—10,000 Ω .
 R3, R4—5000 Ω .
 R5—150 Ω .
 R6—1000 Ω .
 R7—15,000 Ω .
 L4—30 hy. choke 40mA.
 Power Trans.—40mA 350-0-350 and 6.3 V.
 Acorn valve sockets—2.
 9 pin T socket (EF 50)—1.
 Octal sockets—2.
 Polystyrene tubing—2 pieces $\frac{1}{2}$ inch x $2\frac{1}{2}$ inches, 1 piece $\frac{1}{2}$ inch x 1 inch.
 Mains switch—1.
 Shielded output cable—3 ft.
 $1\frac{1}{2}$ inch square I.F. can—1.
 Chassis— $8\frac{1}{2}$ inches x 7 inches x 3 inches—1.
 Panel or box to fit chassis.
 Good quality vernier dial.
 2 x 955 valves.
 1 x EF 50 valve.
 1 x 6X5GT valve.
 1 x VR105/30 valve.

COIL DATA.

- L1—3 turns 14 swg. enam. $\frac{1}{2}$ inch long on 1 inch x $\frac{1}{2}$ inch polystyrene tube.
 L2—2 turns 20 swg. rubber covered, at earth end of L1.
 L3—4 turns 14 swg. enam. $\frac{1}{2}$ inch long $\frac{1}{2}$ inch I.D.
 Cathode top/ $1\frac{1}{2}$ turns from earth end.
 L5—11 turns 18 swg. enam. close wound upper end of $\frac{1}{2}$ inch polystyrene tube.
 L6—11 turns 18 swg. enam. close wound spaced 3/16 inch from L5.
 L7—11 turns 18 swg. enam. close wound lower end of other polystyrene tube.
 L8—2 turns 20 swg. rubber covered at earthy end of L7.

circuit. The I.F. channel should now be in line and quite stable. Insert the oscillator valve and make sure it oscillates without squegging. A pair of earphones in series with its anode supply is probably the easiest check. Hissing noise indicates superregeneration and normal oscillation is revealed by the "plopping" sound on touching the coil.

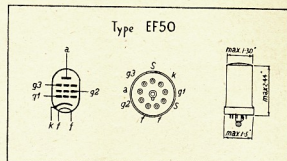
If you have a signal generator that can be heard on 2½ you can proceed directly with lining up. Otherwise a simple test oscillator can be knocked up or the harmonics from the H.F.O. of a super on ten can be used, though a modulated signal is nicer.

Tracking is achieved by judicious coil stretching or squeezing at the high frequency end, and by careful bending of condenser stator plates for the low end. Very little bending is necessary and the whole business is one of patience, and repeated trials. The oscillator coupling condenser will require adjustment. Starting from nearly minimum, increase its capacity little by little for highest conversion gain, judged from output of the receiver, but don't use enough capacity to stop the oscillator in patches, nor to pull its frequency severely.

A word about results may be of interest. There have not up to the time of writing been any amateur signals on this band, but the 116.4 mc. aircraft channel gives plenty of signals if you live anywhere near an airport. From the writer's location, Croydon, and not a good DX location at that, strong signals have been heard from Mascot, Bankstown, Camden and several other airports and several times signals from planes over Canberra, which is a reasonable DX on 2½.

EF 50 DATA.

- Variable mu R.F. Pentode. Indirectly heated cathode.
 Heater—6.3 V. 0.3A. Anode voltage—250 V. Anode current—10.0 mA.
 Screen voltage—250 V. Screen current—3.0 mA. Grid voltage—2 V.
 Slope—6.5 mA/V. Amplification factor 6500. Internal resistance, 1.0 meg.
 Capacities—Input, 7.8 uuf. Output—5.3 uuf. Anode/grid—.0003 uuf.



FINISHING TEST INSTRUMENT PANELS.

A very fine and workman-like finish can be made with panels for test instruments, etc., by first cleaning the aluminium panel with some steel wool and spraying (a fly spray is excellent for the job) with clear varnish as used for coating charcoal and pencil sketches. This varnish can be obtained from most stores dealing in artists colors and oils. Another good clear coating (which the writer prefers) is ordinary clear nail lacquer. This can be brushed on with a fine camel hair brush or even the small brush that comes with the bottle. It leaves a very clear and durable finish.

If prior to varnishing, the panel is drilled and lettering done with black Indian ink, a quite professional job results and the coat of lacquer protects the ink from cracking or being rubbed off.

THE 1946 HAM STATION

In the October issue we asked readers to submit their ideas for the layout of their proposed new outfit, or to submit to us their ideas which would perhaps help considerably in the operation of their Ham Station. We desire to point out that ideas need not have been actually tried out, but providing that the idea is sound, some-one else may be able to improve on it, and he in turn can then pass on the improvements.

W/O B. L. McCubbin, VK3SO, starts the ball rolling with his idea for his new station, and readers may gather from the description and the accompanying sketch that considerable thought has been given to the subject.

Next month we intend to describe an idea for powering the rotary movement of a beam, which, as far as we know, has not yet been used.

I note that you appeal for ideas on the post-war Ham rig. The enclosed sketch gives my idea of a handy layout. We start with a good solid bench, wide enough to accommodate Receiver, Exciter and Mike pre-amplifier, etc., and allow space in front for the Log, Scrap Book, etc.

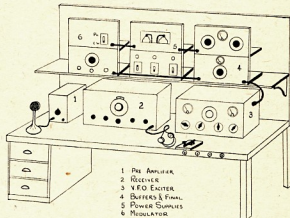
A solid shelf above the operating table supports the Power Amplifier, Modulator and Power Supplies mounted in small racks. The whole layout can be made clean and easily accessible.

The exciter unit is the heart of the transmitter, and my idea of this is a Pearce Crystal Oscillator arranged with Crystal switching to accommodate as many 3.5 M/cs. Band Crystals as are available, together with a good stable V.F.O. as an alternative to Crystal Control.

The frequency multiplying stages will be fitted with frequency switching arranged with L/C values to tune the Ham Bands only, thus eliminating any possibility of off band operation due to incorrect harmonic selection. All stages in the exciter are to operate on the minimum possible power and a buffer stage is to be included to provide sufficient output through a coaxial line to excite the Power Amplifier (in my case I anticipate a pair of 807's in push-pull) without additional amplification.

I also visualise the exciter fully screened to prevent spurious radiation. The keyed stage will be included in the exciter as close to the oscillator as possible and the whole outfit (the exciter) will be supplied from a built-in power supply, thus providing a complete low power transmitter. The exciter should be capable of providing output on 3.5, 7 and 14 megacycles, using the last stage as a buffer, and by doubling in the last stage, provide 28 M/c output.

It may be necessary to use plug-in coils in the ex-



1. PRE AMPLIFIER
2. RECEIVER
3. V.F.O. EXCITER
4. BUFFERS & FINAL
5. POWER SUPPLIES
6. MODULATOR

citer output to obtain this versatility, the object being V.H.F. transmissions, the 28 M/c output being a starter for further doubling to obtain V.H.F. output.

It is difficult to make really concrete plans since the frequency allocations still seem to be somewhat up in the air. (You are on the right track, Om.—Ed.) The question of F.M. also seems to be still in the lap of the Gods, so for the moment I intend to devote my energies to good quality A.M., and for this I prefer high level modulation.

U.H.F. IN THE WAR

By F. T. LUBACH, VK4RF.

Despite the fact that amateurs the world over stand a good chance of again being granted use of most of our old frequency bands in the post-war period, it is only to be expected that a large percentage of Hams will migrate to the U.H.F. bands, as they offer tremendous scope for experiment, and even a chance of DX as has been recently proved in the Northern theatre of war.

Writing from practical experience and quoting reports from other U.H.F. operators in this region, it has been disclosed that ranges of 400 to 500 miles are not uncommon, using only low power in the vicinity of 80 megacycles. One report states hearing a U.H.F. signal near this frequency 1500 miles away! Therefore, the old "visual distance" theory for waves higher than 56 megacycles receives somewhat of a setback, and for this reason U.H.F. "Walkie-Talkie" and other portable equipment hasn't the security it was at first thought to possess and use of plain language is therefore restricted.

Apparently the more prominent factors which make this long-distant U.H.F. communication possible are Temperature and Humidity, as well as ionospheric and atmospheric conditions. For instance, when a pronounced temperature inversion or change of moisture takes place immediately above the transmitter at a height

of only a few thousand feet, unusual distances have been covered.

It has also been found that for frequencies below 100 megacycles ionospheric conditions sometimes combine to make even short-range work unreliable, whereas, in the 100 to 200 megacycle band, chances of long range communication are even less as may be expected, but, above 200 megacycles, atmospheric conditions sometimes help the U.H.F. waves on their onward flight. It must be borne in mind that all these reports are relative to low power portable equipment, and it is realised that higher powered equipment could accomplish much greater feats of DX.

By way of comparison, I personally have found "Walkie-Talkie" outfits in the 3 to 6 megacycle band suffer from the same "line of sight" complex as U.H.F. equipment experiences most of the time, and it is not unusual for signals to fade out when an intervening hill crops up between your Landing Barge and receiving station. It is only to be expected that before this war draws to a close even greater strides, and discoveries will be made in this field, but I feel sure the Ham of tomorrow will have more than enough room for even further experiments on the U.H.F. bands.

WIRELESS INSTITUTE OF AUSTRALIA

NEW SOUTH WALES DIVISION

36th ANNUAL REPORT

To be presented at 36th Annual General Meeting to be held at Science House, Gloucester Street, Sydney,

FRIDAY, 25th JANUARY, 1946.

Gentlemen,

I have much pleasure in placing before you the 36th Annual Report of the Wireless Institute of Australia, New South Wales Division. The period under review has been a momentous one. Many times during the past years the prophecy has been made that the next report would see the lifting of the ban on Experimental transmissions. By the time you read this report it is confidently expected that this prophecy will have become an established fact.

Regulations have now been gazetted for the control and operation of Experimental Stations, and a number of frequencies made available, viz.,

28-29 mC/s.
50-54 mC/s.
166-170 mC/s.
1345-1425 mC/s.

The release of the lower frequency bands is at present impracticable, but these bands will be made available when they are cleared by Service Commands. Members are requested to bear this in mind. Some have been under the impression that the lower frequency bands have been lost. Such is not the case. The frequencies listed above are only a beginning.

With reference to the Regulations there have been certain vital alterations compared with pre-war days; the main variations being the increase in the minimum age to eighteen years, 14 w.p.m., two classes of Licence "A" with a power limit of 100 watts, "B" 50 watts, whilst music and entertainment of any description is banned. This Division has strongly opposed making the A.O.C.P. harder to obtain or increasing the age limit, but it is now apparent that the Department was adamant on both these points. It would appear that the Department has a very short memory. When one recalls the early days of 1939 and the part played by the Australian Experimenter in furnishing a pool of trained Operators. How eagerly the services of the "ham" were sought. It must be admitted that there were a few irresponsible whose thoughtless actions brought down the wrath of the powers that be, but these selfsame fellows willingly took their places in the front ranks with the Fighting Forces with their brother Experimenters. Again there are many present day Experimenters who, if they had waited until they were eighteen years of age, would never have bothered about a "ticket."

The ban on recorded music or any form of entertainment has received universal approval.

The new Regulations will soon appear in print and may be purchased from the Institute or direct from the Superintendent of Wireless. It is imperative that every Member should obtain a copy.

I think you will agree that events have moved swiftly since V-P Day and the most optimistic of us did not expect to be on the air for at least twelve months. Much of the credit must be given to E. H. Cox, VK2GU, for his splendid work, and at the November General Meeting of the Division, Life Membership was conferred upon him as a token of appreciation. It is felt that Federal Headquarters have been a little more

enterprising and more attention given to details. This criticism is offered reluctantly, but in view of the error that occurred in the qualifications for the Class "A" Licence and its repercussions in this State, it must be made. In their favour it must be said that V-P Day came much sooner than they, like a lot of other people, expected.

Increasing attendances during the early months prompted Council to decide to seek larger space for General Meetings, and to again obtain the services of leading authorities in the Radio world as Lecturers. The first step was to obtain the old meeting place at Y.M.C.A. and this proved a popular move. It was decided that negotiations should then be entered into with Science House Management Committee, as it was felt that in view of the part played by the Institute in the early days of Radio its logical headquarters should be Science House. Accommodation was secured in the Lower Hall, but this soon proved inadequate, and after discussions lasting several months, the Institute's application for the use of the Main Hall was approved. It should be pointed out that accommodation at Science House is not easy to obtain and it is only available to scientific bodies of repute and long standing, such as the Wireless Institute of Australia and kindred bodies, and the recognition of our claim is a tribute to the Institute's standing in the community. Therefore, commencing January, 1946, Institute General Meetings will be held on the Fourth Friday of each month in the Main Hall, Science House.

Many outstanding Lectures were delivered by leading authorities on Radio and allied subjects, and this opportunity is taken of thanking Messrs. J. Reed, R. J. Honnor, G. Parker and E. G. Beard. An outstanding demonstration was that provided by Mr. Foster Stubbs, of the Australian Amateur Cine Society. This demonstration showed the work being performed by Amateur Cine enthusiasts in this country, and the standard was astounding and difficult to realise that it was not the work of professionals.

With the cessation of hostilities the need for the Emergency Communication Network was no longer apparent, and it was decided to disband this unit. The Network made history in, not only New South Wales, but the Southern Hemisphere. The State Operational Controller, Colonel L. Lorenzo, D.S.O., has asked me to convey to all operators his personal thanks and appreciation of the work done.

The Bushfires Emergency Radio Scheme is operating at both Young and Dubbo under the able guidance of Messrs. Taylor and Moore respectively. As yet neither unit has been in operation, but should they be called upon during the next few months there is not the slightest doubt that their assistance will be of great value to the local Bushfire Brigades. With so many Servicemen returning to civil life, it is anticipated that in the very near future it will be possible to extend the scope of this Net to embrace a far greater number of country towns.

A long cherished hope will be realised early in 1946. Upon many occasions the possibility of A.O.C.P. Classes have been discussed as it was felt that this was a field that the Institute could be very well represented in. Commencing on 7th January, 1946, a Class will be commenced under the able guidance of Mr. J. Howes, VK2ABS, and selected assistants. Applications for enrolment have been far greater than anticipated. This Class will present a splendid opportunity for newcomers to obtain their A.O.C.P. under the able guidance of Experimenters well versed in all aspects of Radio.

The Official Organ, "Amateur Radio," is once more appearing in printed form and the Magazine Committee are to be congratulated upon the change from the wartime roneo editions. It is particularly gratifying to learn that all Divisions are now including the Magazine in their annual subscription. The magazine is a very fine publication, but unfortunately costs are high these days. This Division has suggested to the Magazine Committee that the price of fourpence per copy should NOT include

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postage. Again an appeal is made for technical articles. In the past this Division has on many occasions provided sufficient copy for a complete issue of the magazine. Unfortunately, during the past year very few articles have appeared under VK2 Call signs. It must be pointed out that the Magazine Committee acts in a purely honorary capacity and their burden is lightened considerably by always having a number of technical articles on hand.

During the year, Council were unfortunate in losing the services of two outstanding administrators, namely, Messrs. Dickson and Priddle. These gentlemen had rendered yeoman service to Amateur Radio whilst Councilors of this Division. It is pleasing to note that they have still retained their interest in Institute affairs, particularly Mr. F. P. Dickson, who acted as liaison between Mr. Cox and the Division during the negotiations with the Department. Newcomers to Council were Messrs. Dukes, R. Patterson and D. Knock. All of these gentlemen have proved themselves to be definite acquisitions to Council, particularly Mr. Dukes, who has acted as Membership Secretary. 2NO requires no introduction, whilst quite a lot more will be heard of 2AJW in the future.

Membership has continued to increase and far exceeds the target set for 1945. It is very pleasing to note that of the three members who failed to renew their subscriptions, only one is an Experimenter! It is confidently expected that 1946 will see a further large increase in membership.

Hand in hand with the increase in membership has been a healthy financial position. An investment of £20 was made in the Third Victory Loan, whilst rent at Science House for 1946 has been paid in advance in order to obtain a concession. The Treasurer, Mr. G. Cole, has proved himself one of the most able men to have occupied this position and it is hoped that the Division will be able to avail itself of his services for some time to come.

It has been decided to revive the Annual Dinner, and the 1945 Re-union took the form of a welcome home to Institute Members, Messrs. Moore, Bridgen and Edwards who were P.O.W.s. In addition, this dinner was a farewell to the retiring Superintendent of Wireless, W. T. S. Crawford. W.T.S.C. during a long term of office has always shown his interest in the Experimental Movement and in pre-war days donated the W.T.S. Crawford Trophy for the best Amateur Telegraphist. It was always a pleasure to interview him on any matter, and his advice was always forthcoming and readily given.

The Experimental Advisory Council will function from the 1st January, 1946, and from the following six names, viz., Messrs. Cole, Fryar, Higgins, Peterson, Patterson, and Ryan, submitted to the Superintendent Messrs. Cole, Patterson and Ryan were chosen to act under the Chairmanship of an officer of the Department. In view of the High Frequencies allotted it became necessary to take into consideration location when deciding upon the personnel of the Committee.

This, gentlemen, is a brief review of the year's activities. What of the future? It has been definitely decided that the Institute is to have its own permanent rooms, and as a first step in this direction a ballot was held to increase subscriptions and was carried by an overwhelming majority. Lack of suitable accommodation is at present a bar to the immediate acquisition. Once these quarters are obtained it is intended to provide members with—

- (a) Test Room and Workshop with all associated facilities.
- (b) Library—both of Publications and Meters.
- (c) Technical Service.
- (d) Marker Stations for all Bands.
- (e) Free QSL Service, both inwards and outwards.
- (f) Subdivide the Institute into various sections. Phone, C.W., U.H.F., S.W.L. with a General Meeting once a month.

(g) Overseas publications, Q.S.T., Radio, Call Book, etc.

Ambitions, certainly, but by no means impossible.

In conclusion, I desire to express my appreciation of the honor bestowed upon me when I was recently elected a Life Member of this Division of the Institute. If my efforts have helped Experimental Radio at all, that would have been my reward, but members decreed otherwise, and again I thank you. I must also thank my fellow Councilors for their assistance and unwavering loyalty, not only during the past year, but also during the war years. For the future I ask that every member of the Institute make it his bounden duty to attend as many meetings of the Division as possible and take part in all discussions. If you do this you will have a strong virulent body worthy of the title of "The Oldest Amateur Organisation in the World."

W. G. RYAN, VK2TI, Retiring Chairman.

HAMS HAD THE NEWS.

(Continued from page 3)

running through the leaves of the thatched roof was practically invisible.

We had many close shaves while operating and building sets. The writer had the doubtful pleasure of bowing to the Japanese Camp Commandant with a set under his arm. Sets were invariably operated at night under a mosquito net (Sandfly trap) and it was strange how quickly one could get to sleep with a wireless set as a pillow with a Nip guard about.

The dissemination of news during the first two years consisted of the passing of a typewritten bulletin around. Later the problem became rather ticklish as it was known that informers were present in the camp. From then on news was passed to a select few and broadcast for general consumption under the guise of extracts from Nip newspapers and flashes from outside camp.

The news of the Jap capitulation was common knowledge on the evening of the 15th of August, but the camp Japs made no statement till some twelve days later.

It was great fun while it lasted, but you can rest assured the reward of most secret radio operators was a few extra grey hairs. It is regretted that no photographs of gear are available. After the capitulation plenty were taken, but in the hurry to get away from glorious Java and its rice, prints were not available. The only memento brought out by the writer was a headphone that did a 1000 B.B.C. news broadcasts.

CORRESPONDENCE

137 Walkerville Tce., Walkerville.

Editor "A.R."

This all started through a visit to a fellow Ham. As Hams will, when they get together, the main topic is radio in general for a start and then Ham radio receivers are discussed. And do we have a rag-chew on the subject. Do we not!

The other chap talks of rebuilding the RF stage and mentions that he is thinking of having an RF stage and using gang condensers for band set and band spread.

Now with due respect to the fact that there are two sides to every argument, why have gang condensers at all? With gang condensers, to get the maximum from your receiver it is usual to have small variables across your main condensers, these being operated from the panel. Thus by my way of thinking you are not making the set any easier to operate but only result in that there are more knobs to play with.

Why not have a single midget across the oscillator

(Continued on page 10)

IN REVIEW

TECHNICAL BOOKS - - - - - RECORDINGS - - - - - PRODUCTS

RECORDINGS

Among the popular hits listed for release are two from Victor Silvester, although entirely different combinations. His Jive Band play two old favourites, "The One I Love" with "There's Honey on the Moon To-night," on the reverse. His Ballroom Orchestra give us, strictly for dancing, two first releases, "Someone Is Thinking of You," Waltz, and "Saturday Night is the Loneliest Night," Quickstep, a catchy tune which has already gained popularity from being heard on the radio.

Joe Loss and Orchestra also presents a first release and popular hit, "Little on the Lonely Side," with Jack Payne's Band playing "The Sun Never Sets On My Dreams."

From Felix Mendelssohn and His Hawaiian Serenaders we have two numbers, "Whispering," an old favourite, and "In the Still of the Night," the latter of course a famous Cole Porter number re-dressed in Beguine rhythm.

Among the vocals, Richard Tauber with Nancy Brown, sing "If You are in Love," the reverse side being "There are Angels Outside Heaven," in which Carol Lynne joins them. These two numbers are composed by Tauber.

Crosby Fans will be delighted with the long awaited recording of Bing's "That's an Old Irish Lullaby," which is backed by "The Day After Forever," with John Scott's Orchestra.

The Andrew Sisters make their appearance once more, this time singing "I Wish I had a Dime," and "Jack of All Trades."

Vera Lynn, with her orchestra, sings "The Happiest New Year of All" (Let's hope it is), coupled with "Estrellita" (Little Star).

George Formby with his Ukelele and Orchestra presents "Sentimental Lou," and "Blackpool Prom."

The many admirers of Flanagan and Allen will be delighted with a new recording by them, both first releases, "Dreaming" and "Flying Through the Rain."

For the Jazz and Swing Lovers, Duke Ellington and Jimmy Blanton (Piano and String Base) play "Body and Soul" and "Mr. J. B. Blues."

Bud Freeman and the Sumner Cum Laude Orchestra play "Oh, Baby," and "Sensation."

Sidney Bechet, Soprano, Sax, Clarinet, Piano, Bass and Drums. (What, no vocal?) "Blues of Bechet," and "Sheik of Araby."

Benny Goodman and Orchestra, "Tuesday Night at Ten," and "Air Mail Special."

Van Alexander and Orchestra, "Night and Day," and "On the Road to Mandalay."

Harry Leader and Orchestra, "Southpaw Special," and "Cossack Patrol."

The Queensland State String Quartet will delight lovers of classical music with their brilliant first recording of the "Quartet No. 11 in D Minor," composed by Alfred Hill, a noted Australian who has a considerable number of compositions to his credit.

Noel Mewton-Wood, famous Australian pianist has recorded two rarely played, but warmly appealing Weber sonatas. No. 1 in C Major Op. 24 and No. 2 in A Flat Major Op. 39.



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Classical Music Lovers will be interested to learn that a Music Lovers' Club has been formed, and recorded music recitals are held every second Thursday night at 8 p.m. in the Victorian Music Teachers' Association Rooms, 4th Floor, Kelvin Hall, Collins Place, Melbourne.

The programmes and equipment are first class and those interested can ring Miss Findlay, F 3145 (daytime) and Mr. R. Dreyfus, Wind 4565 (evening) for further particulars. The next recital is on January 31st, 1946. Enquiries are welcome.

BOOKS

PRINCIPLES OF RADIO—Keith Henney.

This is the fifth edition of one of the standard manuals of radio first published in 1929 and periodically brought up to date since that year. The author, of course, is well known as the editor of our contemporary, "Electronics" (How to keep sweet with ye Editor, in one easy lesson).

The subject coverage of previous editions is too well known to require mention here, but the following will give an indication of the new material added:—Wave guides, velocity modulation tubes, F.M. Klystrons, U.H.F. techniques and apparatus, new chapters on measuring instruments, magnetic circuits, additional data on use of Kirchhoff's Laws, power factor, filter circuits, differentiating and integrating circuits, pulses, transients, square waves, voltage and current regulator tubes, etc.

Mr. Henney has some interesting comments to make on BCL receivers—"Manufacturers of receivers have spent the energies and capabilities of their engineering departments in reducing the cost of receivers for the sake of mass production of low-priced units instead of in improving the tone fidelity of reproduction. So much distortion and noise are inherent in the average broadcast receiver that, if the frequency response band were widened out to reproduce what is available from the average broadcast transmitter, the receiver would be unsalable." Mr. H. you've said it! That is good, let's have some more. "... their output (BC Transmitters) is vastly beyond the capabilities of the average broadcast receiver to reproduce... devices of limited tone response full of distortion products which make the reproduced sounds quite unlike those picked up by the studio microphones."

Henney's "Principles of Radio" needs no recommendation, it stands on its own merit.

PRINCIPLES OF RADIO—Keith Henney (John Wiley & Sons Inc. N.Y. with Chapman & Hall, London, 1945) 522 pages 5 x 7 and index, 319 diagrams—31/6.

RADIO SERVICE TEST GEAR—W. H. Cazaly.

The illustrations and all but the first chapter of this useful little book appeared originally with very slight alterations as a series of articles in the "Wireless World" about two years ago, and those who had the good fortune to read those articles will appreciate W. H. Cazaly's knowledge of the subject of Test Equipment.

This is a very useful guide for those who desire to assert their individuality by building their own instruments. It forms a valuable introduction to the subject of Test Gear and will assist in gaining an understanding of the fundamental AC and radio theory which forms the background of the subject.

It is a guide only, explicit constructional details are not given. The author gives as a reason, amongst others, "... design data for all instruments mentioned are to be found in a large number of technical books and periodicals if people take the trouble to search for themselves—which is far better for their own radio education, than being told exactly where to look."

Sound advice, and Mr. Cazaly logically adds that the construction of one's own gear, together with voracious

reading of technical literature is by far the best method of improving one's knowledge of radio theory and technique. "The school of practical experience still charges extremely high fees, but in radio they are worth paying."

The subjects covered include: Standard Signal Generators and Test Oscillators, Output Meters and Attenuators, Valve Voltmeters, Testers and Bridges at AF for Inductance and Capacitance, Electrolytic Condenser Testing and Inductance and Capacitance at RF, Beat Frequency Oscillators, Valve Testers, and Multivibrators.

RADIO SERVICE TEST GEAR—W. H. Cazaly (Sir Isaac Pitman & Sons Ltd., London, 1945), 89 pages, 5 x 7 and index, 46 diagrams, cloth bound, 9/6. Copy by courtesy Technical Book and Magazine Co., Melbourne.

OUR FRONT COVER

MAINLY FOR "A" CLASS STATIONS.

All amateurs are vitally interested in making the most out of their licensed input, in other words in obtaining higher efficiency. The Philips TB1/100E, a graphite plate 100 watt is a valve which will operate in suitable circuits at better than 75% efficiency at 30 mc/s and is therefore ideal for 10 metre DX. When you can put 75 to 80 watts of your 100 watts input into an efficient antenna, you have the answer to the question of going places on ten. On the 50 mc band, too, a splendid performance can be obtained and the long life of these tubes at 50 mc/s as raw A.C. fed oscillators speaks volumes for the punishment they can stand.

GENERAL CHARACTERISTICS.

Filament, thoriated tungsten	10 to 10.5V, 2A
Amplification factor	23
Transconductance at 100 mA	4200 Micramhos
Capacities, grid to plate	4.5 mmf.
grid to filament	3.5 mmf.
plate to filament	1.7 mmf.

DIMENSIONS AND CONNECTIONS.

Overall length—7½"
Diameter, including grid cap—2½"
Plate connection—Top of bulb.
Grid connection—Side of bulb.
Filament connection—Large pins to standard UX base.

FOR THE C.W. MAN A USEFUL RATING IS:—

Plate voltage	1000V.
Grid bias	—120V.
Plate current	100mA
Grid current	20mA.
Grid drive	5 watts.

When on plate modulated phone, a fixed bias of —30V is recommended, and a grid leak of 8,500 to 10,000 ohms for operating bias. The grid drive of 75% efficiency is then 7 watts.

C.W. men sometimes like grid modulated phone as a side line; TB1/100E will give you 40 watts for 100 watts input on ten metres, with 1500V on the plate.

We have not yet had the chance to try them out on 166 mc/s, but as in self excited oscillators we can run at 1000V. with 54% efficiency, the outlook is favourable.

CORRESPONDENCE—Continued from page 8.

band set and have separate controls for the RF and Mixer stages? When chasing that weak signal we usually keep trying to peak up the signal on the RF and Mixer trimmers to try and get that little bit extra out of the set to bring the signal above the background noise. So where is the advantage of gang tuning condensers?

I could go on for hours on this subject especially on AVC and Crystal Filters—bet you that raises a howl—but I think that this is sufficient to start the ball rolling. —Yours, etc.,

W. J. MEAD, VK5JMJ.

FEDERAL HEADQUARTERS

FREQUENCIES.—First important news to break since our last instalment of F.H.Q. notes was that of the frequencies allotted for our use immediately following re-activation. These frequencies are:—

28-29 Megacycles.
50-54 Megacycles.
166-170 Megacycles.
1345-1425 Megacycles.

So it looks as though for a time we will all be going VHF, which incidentally will do no harm.

It would be as well to explain, before we go any further, that our other bands are quite safe (with the probable exception of 160 Mc), but cannot be made available yet. The first of these will be 80, probably in about three months time, 40 and 20 to follow as soon as possible.

In the meantime all and sundry can set about deciding whether that proposed array for 166 Mc/s should have 20 elements or 120, and whether that pre-war 3.5 Mc/s rock will hit the 50 Mc/s band, how many racks full of doublers, triplers and so forth will be required (you know it would almost pay someone to go into the doubler business at so much per foot of panel—saw them off in the lengths required!).

And that 1400 Mc/s band—you fellows who have been playing around with Magnetrons and other assorted jitterbug bottles lately will be in your element—if you had the foresight to bring any of the said gadgets home with you. And who would have thought the crystal detector would ever come back into its own? How things change—or travel in circles maybe!

REGULATIONS.—Tucked away at the bottom of a page in the Commonwealth Gazette of 29th November, was a brief announcement—that copies of Statutory Rule No. 185 of 1945, Amendments to the W/T Regulations—were now available at the modest sum of fivepence per copy.

This was the news for which we have all been waiting, news that made the great industrial holdup a thing of but passing interest, a mere shadow of the backdrop (particularly in VK2 where of course a the moment of writing a certain amount of shadow is compulsory after 2100 hours.

The new provisions in our regulations are now public property and a resume will be found in this issue, what has for some time been off-the-record at FHQ is now there for all to read.

We take this opportunity to point out that it is the usual policy in all Government Departments to reveal nothing of any proposed regulations until they are gazetted, in this case Federal Executive was taken into the confidence of the Chief Inspector at the time the regulations were drafted, this being necessary so that we should have the opportunity to voice our opinions on behalf of all members. Naturally any breach on our part this confidence would have been most serious, so you will understand now why we have previously made no reference in this magazine, or elsewhere for that matter, to the final results of the proposals submitted by us to the Chief Inspector. Certain information did trickle out in other States, but it did not come from the Federal Executive.

Our friends at Treasury Gardens are now well into the task of dealing with those licence applications which you good people were so kind as to forward and any day now you can expect a polite request for the sum of one pound, being the fee now payable for all classes of licence issued under the W/T Act.

NEW EXECUTIVE MEMBER.—The existing Members of Federal Executive take this opportunity of welcoming Vaughan E. Marshall, VK3UK, to Federal Executive. Vaughan has been appointed in place of Bill Williams, VK3WE, who has now returned to the country.

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By exercise of your Amateur ability you can use some of these parts to build an efficient, high quality station at low cost. To ex-servicemen many of these parts will be well and favourably known.

Because of variety and limited quantities of some parts, and rapidly changing stocks, no catalogue is issued, so call in and select your requirements.

Besides salvaged parts we carry a comprehensive range of new parts, and specialise in the following:—
Aluminium and steel chassis, made to your special requirement, either crackle finish, sand-blasted or cadmium plated.

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Speakers.

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Resistors, carbon and wire-wound.

Meters, RF, DC, AC.

Condensers, electrolytic, paper, mica.

Transmitting keys.

RF Chokes, Line-filters.

Switches, etc., etc.

In short, all parts are stocked to make receivers, amplifiers, transmitters, public-address systems, inter-office phones, and other electronic devices.

Should you need technical assistance or special parts, may we have the opportunity of helping you.

COLLINS RADIO

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(VK3OI)

THE COMING YEAR.—Many at this season recall the quotation made famous by the King in an Empire broadcast, "I stood at the gate of the year . . ."

To-day the world stands with mingled hope and misgiving at the gate of a momentous year, the first year of peace after the greatest calamity in the history of man. The clouds which came so suddenly have as suddenly gone, and man turns his face to the sun and the stars, and begins to build anew, as he has always done after the storm has passed.

To the Radio Amateur the gate of the year is opening on his beloved pursuits, his lamp is the lamp of science and of comradeship, his ideal that of service without thought of reward. His fraternity has in the past years achieved notable things, his war record is cause for the honest pride that is born of satisfaction with a task well and nobly done.

Soon the ether waves will whisper his language again, carrying his message of good fellowship from town to town, city to city, and from one land to another, until the whole world shall know the Amateur is back.

May this year and the years to follow see the brotherhood of the radio amateur rise again to what it was before, and become even greater, may the kings and the commoners, the politicians, and the people of the world learn at least a little from the great international link that is Amateur Radio.

OVERSEAS.—Late news has been received that the RSGB has been notified that the frequencies immediately available on the issue of Licenses will be—28-29 M/c/s; 58.5-60 M/c/s; CW and Telephony to holders of pre-war licenses. Power 100 watts on 28, and 25 watts on 58. The same bands but 25 watts telephony only for the first 12 months will be available to pre-war A.A. licence holders (subject to Morse test by GPO).

EXTRACTS FROM AMENDMENTS TO THE WIRELESS TELEGRAPHY ACT 1905-1936, AND STATUTORY RULES 1942 No. 348, AS PERTAINING TO THE OBTAINING OF AMATEUR OPERATOR'S CERTIFICATES OF PROFICIENCY AND THE ISSUE OF EXPERIMENTAL LICENCES.

These Regulations were published in the Commonwealth Gazette, dated 29th November, 1945, copies of which may be obtained from the Sub-Treasury in each State.

The examination for a First Class Amateur Operator's Certificate of Proficiency shall be such as to show that a successful candidate possesses the knowledge and qualifications specified in this regulation, namely—

- (a) A general knowledge of wireless telegraphy and wireless telephony and electrical principles.
- (b) A knowledge of such of the Radiocommunication Regulations for the time being in force under the Telecommunication Convention and the Wireless Telegraphy Regulations as relate to the operation of experimental stations.

- (c) Ability to send correctly, and to receive correctly by ear, in Morse code, a message in plain language at a speed of 18 words per minute.

The examination for a Second Class Amateur Operator's Certificate of Proficiency shall be such as to show that a successful candidate possesses the knowledge and qualifications specified in this regulation, namely—

- (a) An elementary knowledge of wireless telegraphy and wireless telephony and electrical principles.
- (b) A knowledge of such of the Radiocommunication Regulations for the time being in force under the Telecommunication Convention and the Wireless Regulations as relate to the operation of experimental stations.

- (c) Ability to send correctly, and to receive correctly by ear, in Morse code, a message in plain language at a speed of 14 words per minute.

There shall be two classes of experimental stations, namely, Class A stations and Class B stations.

A licence for a Class A station may be granted to any person who—

- (a) is over the age of eighteen years;
- (b) is the holder of a First Class Amateur Operator's Certificate of Proficiency or such other certificate of proficiency in Wireless Telegraphy as is determined by an authorized officer; and
- (c) has operated an experimental station for a period of twelve months to the satisfaction of an authorized officer.

A licence for a Class B station may be granted to any person who—

- (a) is over the age of eighteen years; and
- (b) is the holder of a Second Class Amateur Operator's Certificate of Proficiency or such other certificate of proficiency in Wireless Telegraphy as is determined by an authorized officer.

The licensee of an experimental station shall use his licensed equipment solely for the purpose of investigation or research into, or instruction in, wireless telegraphy.

Except as provided in regulation 29, the licensee of an experimental station shall not communicate with any station other than an experimental station.

When communicating with another experimental station, the licensee of an experimental station may transmit and receive only messages of an unimportant character in plain language relating to experiments, or consisting of remarks of a personal nature.

Provided that the licensee shall not use his station for the purpose of communicating with countries whose Administrations do not allow the transmission or reception of such messages.

The licensee of an experimental station shall not, in any circumstances, undertake the transmission or reception of messages for third parties.

The power (measured at the anode of the valve or valves delivering power to the aerial circuit) to be used in an experimental transmitting station shall not, except in such special cases as may be approved by the Minister or an authorized officer, exceed 50 watts in the case of a Class B station or 100 watts in the case of a Class A station.

The licensee of an experimental station shall install and maintain, to the satisfaction of an authorized officer, approved instruments for indicating accurately the power used.

Except with the approval of an authorized officer, the licensee of an experimental station shall confine his transmissions to continuous wave and telephone transmissions.

The licensee of a Class B station shall confine his transmissions to continuous wave emissions for a period of six months from the date of commencing operations:

Provided that an authorized officer may waive this requirement in respect of any person who held a licence for an experimental station under the Wireless Telegraphy Regulations repealed by Statutory Rules 1942, No. 348, or in such other circumstances as an authorized officer may determine.

The licensee of an experimental station shall ensure that his transmitting equipment is always accurately tuned to the frequency on which he intends to operate and for that purpose he shall, unless exempted from so doing by an authorized officer, maintain, in good order, apparatus of a type approved by an authorized officer.

The licensee of an experimental station shall not, except for brief tests and adjustments, cause a carrier wave to be emitted from his transmitting equipment unless such wave is subjected to intelligible modulation.

The licensee of an experimental station shall employ

(Continued on page 16)

DIVISIONAL NOTES

NEW SOUTH WALES

The November General Meeting of the Division was held at Science House, Gloucester Street, Sydney, on Thursday, 22nd November. Again standing room was at a premium, but Members should take heart in the knowledge that January General Meeting would take place in the Main Hall, Science House, with ample seating accommodation for everyone.

Chairman, in declaring the meeting open, extended a welcome to many visitors, including Mr. D. Wyles, Chairman of the Institute of Radio Engineers, Wing-Commander Meyers, and quite a number of other servicemen, whom we had not seen for some time.

A very interesting lecture was given by Mr. E. G. Beard, of Philips Electrical Industries. The majority of members present were amazed at the many and varied methods of producing Frequency Modulation, although not a great number of them would be applicable to Amateur Stations. At the conclusion of the lecture, the speaker was bombarded with questions as evidence of the interest shown. A very hearty vote of thanks was carried in the usual manner.

The Vice-President, Mr. E. Treharne, informed the meeting that it was a recommendation from Council that Life Membership be conferred on the Chairman for

his services to Amateur Radio during the past years. The recommendation was unanimously adopted.

Quite a deal of discussion centred around the new Regulations, and whilst members were in favour of a majority of them, it was felt that quite a deal had been lost by making the A.O.C.P. harder to obtain, particularly from the point of view of the age increase. After much discussion, it was decided that F.H.Q. be approached with a request that the age limit for the granting of an A.O.C.P. be sixteen years.

YOU ARE REMINDED THAT THE JANUARY GENERAL MEETING, WHICH WILL BE THE 36th ANNUAL GENERAL MEETING OF THE DIVISION, WILL BE HELD AT SCIENCE HOUSE ON FRIDAY, 25th JANUARY, 1946.

Full Member	£1/1/0
Associate	15/0
Service	7/6
Student	7/6

VICTORIA

At the last monthly meeting of the Division held at the rooms on Tuesday, December 4th, there was a very large gathering of members and visitors. The atmosphere was

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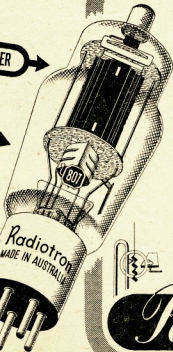
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Plate Dissipation (CCS)
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more tense and the meeting was conducted in some way different due to the subdued air of members than what has been previously noted. There appears to be some just reason for the said change, particularly since official notice has been received from the P.M.G.'s Department concerning the return of gear held in custody.

The discussions of the leftists have disappeared, and more so on this occasion possibly to make way for "Ears to the ground" attitude to take in all news of pending happenings. We hope that very soon, suspense will give way to celebration, lots of activity and happy DX hunting, etc. Also it is hoped that the foregoing will not interfere with the keenness displayed in attending meetings as in the past.

The welcoming of visitors and new members was efficiently handled by Max Howden, VK3BQ, who was in the chair, vice Harry Kinnear, VK3KN, earlier reported ill. In extending a hearty welcome to overseas and Interstate visitors, the following were named:—Major J. Squires, VK6JS; Capt. Cadell, VU2EB; H. Cullerton, VK2AIY; E. Treharne, VK2AFQ; E. Martin, VK2AHY; R. Torrington, VK2TJ; and A. T. Wishart, VK4WT.

New Members literally abound and the following applications are in the hands of the Membership Secretary: H. O. Kellas; J. K. Herd, VK3JK; W. L. Stevens; E. W. Martin, VK2AHY; G. Strachan; F. W. Hand, VK3YH; A. M. O. Atkinson; R. R. Jepson, VK3JL; J. H. Matthews; L. Spurrier; H. M. Walsh; and J. E. Groves.

The meeting was attended by over one hundred of the local Ham fraternity, and owing to a hitch caused by some reorganising there are no call signs included this month. The production of these notes is at present in the hands of another Syndicate—so bear with us, dear readers, as taking over we have not yet caught up and have left some behind.

When FHQ Secretary rose to take the floor all ears went to ground. There was considerable listening to an eloquent flow of talk regarding the possibility of future doings, frequency allocations, restrictions and what not. (These details to be found elsewhere in the Magazine).

Another "highlight" of the night's proceedings was the presentation to this Division of an elaborate Field Portable Transmitter and receiver. This apparatus was very generously donated by the Director of Services Reconnaissance as a result of an approach made by Lt. Colonel Israel and Captain Cadell, VU2EB. The set was handed over by Capt. Cadell. The Chairman thanked Capt. Cadell and the donor on behalf of members, and spoke tribute in moving a vote of thanks. The said gear is extremely portable, efficient and will no doubt be appreciated by student members, who will be able to gain considerable experience in practical training to qualify in operating procedure, also for any other members keen on field communications.

This apparatus was donated by the Director because of his keen appreciation of the work of the Amateur Wireless Operators and their devotion to duty in the Army Signal Corps during the war. By this gesture, the Army has no doubt acquitted itself, very much to our benefit, of any obligation felt in this respect. This Division and all Amateur Operators should feel justly proud that their services, as such, should be recognised, and that the esteem is expressed by the splendid token.

Captain Cadell, VU2EB, who is a very diligent personality at the Division's monthly meeting, responded to the Chairman in such terms as to leave no doubt that he was anxious to play his role as the recipients.

The Federal Convention of the Wireless Institute of Australia is to be held during Easter Vacation period and all States are specially requested to work hard and fast on the Agenda to be submitted in time for that worthy period.

By the way! Where is George Thompson, VK3TH? Snow Campbell, VK3MR, did not give us anything, but he may have one ready for January? Could VK3YL be prevailed upon re that receptionist job on the ground floor, meeting nights? President Harry Kinnear, VK3KN, looks more robust than ever after operation and illness.

Bob Anderson, VK3WY, is being very QRL with illness of daughter, Brier, and other Institute matters of great import. The foundations of Law Court Chambers will be shaken by other news concerning Vaughan Marshall, VK3UK, in FHQ circles. Forget what you read about George Thompson, we heard something, "Secret yet" you will soon know—so be patient.

The next General Meeting of the Division will be held at Law Court Chambers, Top Floor, 191 Queen Street, Melbourne, at 8 p.m., February 5th. Members and friends, in fact everyone interested in radio, is welcome.

We hope all our readers have survived Xmas happily, and trust you will enjoy a happy and undisturbed hunting for 1946.

WESTERN ZONE

ACTIVITY RESUMED.

The meeting was held at Hamilton on the 17th of November, 16 Hams and prospective Hams were present, and apologies were received from five other active members.

Proceedings commenced with a Dinner at the Victoria Hotel, a sumptuous three course repast, after which those concerned adjourned to one of the studios of 3HA (by kind permission of the management) and the business of the evening commenced in earnest.

Those present at the meeting were: 3FA, 3HG, 3II, 3QC, 3JA, 3TW, 3JX, 3TN, Messrs. Learmonth, Naylor, Palmer, Ferrier, McGrath, Ross, Woodburn. Apologies were received from 3NK, 3SC, 3YW, 3KJ, ex-3PG.

Naturally the first item on the agenda was the election of office-bearers for the ensuing twelve months, and resulted as follows:—

President: George (Tim) Wells, VK3TW.

Vice-President: Neil Templeton, VK3HG.

Secretary and Treasurer: Mort Riley, VK3TN.

Together with a committee consisting of Leigh Simpson, VK3II, Jack Sydow, VK3JX, and Brian Falkenberg, VK3FA.

Possibly the most important business of the evening resulted from a motion by Bruce Plowman, VK3QC, in the form of a recommendation as follows:

"The Victorian Division of the Wireless Institute of Australia to accept views of this zone as to the ideal set up of the Wireless Institute of Australia.

"That organisation to be based on a Federal Headquarters with a paid secretary, to act as a nucleus of all V.K. activities, such Federal body to comprise an equal number of members from each State (irrespective of numbers of State membership). Said State divisional headquarters to consist of delegates from each zone and each State division to have a paid secretary. State and Federal headquarters to meet at pre-determined regular intervals.

"The salaries of the above secretaries to be paid by means of a levy on all members of the Wireless Institute of Australia, or alternatively by higher subscriptions."

On a motion moved by Leigh Simpson, VK3II, the subscription to the Western Zone was fixed at 2/6 and also that only financial members of the zone be permitted to engage in the competitions at present being organised by the zone committee.

A motion submitted in absentia by VK3YW that C.W. abbreviations be banned on phone was discussed at length and it was finally decided to adopt the motion by a majority vote, three voting against.

It was decided that immediately operations are commenced, code practice transmissions on a roster system would be inaugurated on frequencies to be fixed by the committee, and also that VK3WI be asked to provide marker transmissions at regular publicised intervals.

Many other matters pertaining to the Western Zone were discussed at length, including Vigilance Officers (.), Assistance to Hams and prospective Hams. Emergency operations.

A general meeting of the Western Zone is scheduled to take place at Hamilton three months after the resumption of operations.

The President spoke in moving terms of the great loss Amateur Radio in general and the Western Zone in particular has sustained by the untimely and tragic death of Gordon Templeton, VK3OW, at the conclusion of years of active service to his country.

QUEENSLAND

The last month has seen a good deal of activity here with quite a few chaps busy making their equipment perk on the higher frequencies, as it seems that we are to be allowed on there first.

At the November general meeting, the lecture promised by L. Rickerby, VK4VR, had to be postponed owing to that gentleman's absence from town on business. However, Herb. Sprenger, 4ES, rose to the occasion and regaled members with an interesting account of the Police Radio System. Herb. also outlined the problems to be overcome when establishing reliable high-frequency communication between fixed and mobile stations and the methods adopted in overcoming these unexpected difficulties.

Congratulations go this month to Arthur Walz who recently celebrated his marriage. We trust that you will return to Ham activity as soon as you are settled down, Om.

Plans are to be finalised at the next G.M. for a grand reunion to be held early in the new year, with the idea in mind of having both the re-union and a celebration of our newly found, or should I say restored, freedom.

By the time these notes are in print every Ham in Queensland will have received a letter inviting him to join the Institute. We are hoping for a good response from country men whom we are unable to contact personally.

OUR ACTIVITY.

4RY—Busy wiring up power supplies and dusting the dust off the rig. Has got to get an antenna up yet.

4RC—Doing an awful lot of listening on what must be an excellent receiver. Bob will have all the DX lined up ready for the big day.

4DY—Eric emerged from the dim and distant past and presented himself at the last meeting. Welcome back, Om.

4CZ—Just when we think that all the old Hams have come to life, along come these fellows and upset our theories. See you on the air sometime, Om.

4WT—If you see this, Willie, I'll bet you receive a surprise. Well, one of my spies saw you recently in Melbourne. How's business? (Says he's going to be a VK3—Ed.).

4EN—Eric, following a terrific initial outlay of energy, is now taking things a little easier.

4KO and the Ipswich gang.—How are things going, Om's? I was thinking that Ipswich would be a useful centre of co-operation in 56 mc. activity, so I hope some of you chaps are interested in V.H.F. activity.

4KH—Been building any more supers lately, Bill? or was the last one beyond improvement?

4AP—An old Ham who seems as keen as ever.

4ES—Wrongly reported recently as being in the south on holidays. He tells me it was just hard work.

4FB—Doing some good work sending along prospective members. Thanks, Fred.

4LP—Is in the Army up in Darwin doing Radar work. Hope you'll soon be with us, Om.

On the eve of resumed activity, it might be pertinent to give a little advice to newcomers to the Ham ranks, and to also give a reminder to old timers. The following words of wisdom are from the April, '39, QST, and for the use of, and the slight alterations to the text, my apologies are due to W4IR of the "Dixie Squinch Owl."

And the Lord said unto Moses: "Go ye up on top of the mount and receive the Ten Commandments." So Moses picked up his Ham gear and toted it up the hill. He set his coherer on a stump, put the cans on his conk, picked himself up a flat piece of rock, fished his hammer and chisel out of his pocket, cranked up his haywire and says "K." Then the lightning flashed and the thunder rolled and Moses said: "QRN, QRN, send louder please, there is Skip Distance." And the mount trembled and shook as Moses copied on the stones:

1. Thou shalt not make more than six dots for the letter "H"
2. Thou shalt sign thy call at least once every 100 CQs.
3. Thou shalt not have loud harmonics nowhere, no-how, no-time.
4. Thou shalt not thump BCLs much.
5. Thou shalt not modulate over 300 per cent.
6. Thou shalt not say "R.R." when you didn't get it.
7. Thou shalt not shoot at local Fone men.
8. Thou shalt love the Ham that squawks all over thy freq. even as you do his'n.
9. Thou shalt always be a good W.I.A. member.
10. Thou shalt keep thy haywire in the ham bands so that thy days may be long in the call book.

SOUTH AUSTRALIA

The monthly general meeting, which took the form of a Social, was held on Tuesday, 11th December, at the Bohemian Cafe, when more than sixty attended. As a matter of fact, we were fortunate to have been able to hold the meeting at all, as the very next day severe lighting restrictions were imposed prohibiting the use of electricity at public gatherings!

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The President, Mr. Ivor Thomas, VK5IT, opened the meeting and introduced the visitors, who were Major Sharland, M.C., Sq.-Ldr. H. M. Bain, VK3HB, representing the Air Force, the Superintendent of Wireless, Mr. Harrington, with Messrs. Pike and Thompson, representing the P.M.G.'s Department, and the President of the I.R.E., Mr. Don Gooding. Apologies were received from Professor Kerr-Grant and Capt. Darby.

In the course of some brief remarks, the Chairman traced the progress of the Institute since its re-establishment from scratch, last July, to the present membership of 135.

Major Sharland then gave a talk on his experiences in the Securities Branch during war time. He made some remarkable disclosures of espionage in this State, which was the Headquarters for Australia of the enemy's organisation, and traced its activities back almost to the last (1914-1918) war. It was certainly an eye-opener to most of us to hear of all that had gone on and also gratifying to know that our own side were very wide awake to what was happening.

The toast of the P.M.G.'s Department was proposed by the Secretary, Mr. Barbier, VK5MD, and Mr. Harrington, in responding, paid a glowing tribute to the war effort of the Amateurs in the services and also in A.R.P. and Listening Post work. He then gave the latest information on the license position and explained the salient points of the new regulations. He was afterwards besieged with questions by members seeking further details affecting their own particular cases.

Mr. C. H. Baseby, VK5BZ, proposed the toast of the visitors, and Sq.-Ldr. Bain, who replied, also praised the Amateurs and sketched their value to the R.A.A.F., particularly in the earlier stages of the war when very few other skilled technicians and operators were available.

Among those present and welcomed back to the Institute were Sq.-Ldr. Harry Wheeler, D.F.C., (VK5HW), Flt.-Lt. J. C. Jennison, D.F.C., Flt.-Lt. Clem Tilbrook, VK5GL, and Mr. H. E. Brock.

The Technical Committee, which was proposed at the previous general meeting, has now been formed and consists of Mr. E. P. McGrath, VK5MO, Chairman; and Messrs. H. M. Brown, VK5MB; S. E. Buckerfield, VK5DA; A. C. Smythe, VK5MF; and A. F. Wreford, VK5DW. The Committee is available for advice and instruction on technical matters, and members are accordingly invited to write to the Committee, c/o Secretary, of their problems.

The next meeting is to be held on Tuesday, 12th February, at 17 Weymouth Street.

TASMANIA

This Division's monthly meeting took place at 8 p.m. on Wednesday, 5th December, at which 22 members were present.

Council Members met at 7.30 and dealt with the bulk of the business. Present were VK7LW in the chair; VK7BJ, VK7CW, VK7ML, ex-VK3LL, and VK7PA. Apologies were received from VK7CJ.

Several new nominations were dealt with and the essential matters prepared for the General Meeting which followed.

A comprehensive list of FHQ's proposals for Regulations and the attitude taken by the various Divisions and the P.M.G.'s Department was read and appreciation of the Federal Secretary's thoroughness was expressed. A minute was recorded expressing the Divisions appreciation.

Satisfaction was expressed at the notice of immediate frequency allocations, for although limited they show that we are not being left out and allow us to get under way as soon as licences are issued.

At the general meeting many new Hams were evident amongst those present and the President welcomed the returned men back into civil life.

VK7CM was congratulated on his being selected as one of Tasmania's Rhodes Scholars. Charlie secured his Degree of B.E. at the Tasmanian University in 1942, and of 25 subjects secured 16 high distinctions, and 8 distinctions as well as many prizes and scholarships. From January, 1943, he served in the Forces on Radar work in Australia and the Islands, and carries two pips. The good wishes of all are with him.

Three members were selected to represent the Institute on the new committee which is to replace the old Vigilance Committee. On the recommendation of the Council one selection was from Council and two from non-office bearing members. Although this job is one that is not relished like many others, it has to be done, and it is hoped that full co-operation will be forthcoming from all concerned.

Owing to our next meeting night falling on the 2nd of January, it was decided to hold it on the following Wednesday the 9th of January, to enable any who would be absent over the New Year to have a chance of attending.

At the conclusion of the meeting, a number of receivers were produced and a discussion took place on this very open question. Three commercial models were made available—two Australian constructed, an S.T.C. and an A.W.A. Communications receivers were amongst the collection, as was a Halicrafters 1938 model.

Comparisons were made and much noise endured, due mainly to the locality, and by the general interest shown it would seem that some bank rolls may suffer a setback, or worse still a mortgage may be the outcome.

The pros and cons of crystal filters, noise suppressors, band spreading, and what not were discussed vigorously; and as an outcome it would appear you can have, needn't have, don't need, some, any, all more or less of them, take your pick, but the most inspiring point to the unfamiliar one was the number of knobs and buttons that the panel of each displayed, almost as bad as a modern bomber.

The exhibited contrast of a small home built 3-tube super was also put through its paces and showed great promise. In all, the gear displayed was much appreciated and gave the meeting just what it takes.

The pros and cons of Heterodyne Frequency Meters is on the programme for the next meeting, and it is hoped that this subject will be of equal interest.

VK7 regrets that we have not as yet been allotted a band suitable for interstate contacts, but wishes all happy hunting on the frequencies allocated and prosperity in the New Year together with the hope for contacts in the not too distant future to renew old acquaintances and to make new ones.

F.H.Q.—Continued from page 12.

in his transmitting equipment such circuits, devices or methods as will ensure freedom from the effects of frequency variation (other than necessary modulation), harmonics, key impacts or other unessential emissions.

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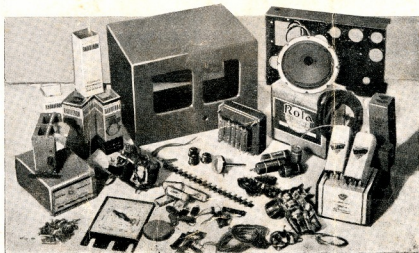
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